DUPLICATE 2

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AB The elimination of cell populations in vivo often relies on reagents that are self-limiting, are difficult to design and produce or contain highly toxic components. Here we describe a novel immunotherapy using molecules that combine a cell-specific ligand and a hapten binding to preexisting antibodies in serum. The F(ab')2 fragment of a polyclonal anti-thymocyte globulin (ATG) preparation was used as a T-cell-specific ligand, and fluorescein isothiocyanate (FITC), as the hapten. Clearance of **ligand-hapten conjugates** from the circulation through formation of immune complexes was prevented through controlled synthesis of conjugates so that they contained one F(ab')2 fragment and one FITC molecule. Administration of a single dose of F(ab')2 or F(ab')2ATG-FITC into naive mice had no effect on the number of circulating T cells. In contrast, injection of F(ab')2ATG-FITC into mice with circulating anti-FITC antibodies resulted in the elimination of peripheral T cells. The reduction in cell numbers was equivalent to that obtained with a corresponding dose of intact ATG. Experiments in thymectomized mice demonstrated that the reduction of circulating T cells was due to target-cell elimination and not to immunomodulation or cellular sequestration. The adaptability of the model to other sources of effector antibodies and more useful ligands is discussed.